STUDY PURPOSE AND GOALS

The Wisconsin Department of Transportation (WisDOT), in cooperation with the Federal Highway Administration (FHWA), undertook this comprehensive study to review and analyze transportation needs along USH 51 from Burma Road in the Village of McFarland to the east side of the City of Stoughton. The study also incorporates a roadway deficiency analysis for USH 51 from Stoughton to IH 39/90. Figure ES-1 shows the study corridor.

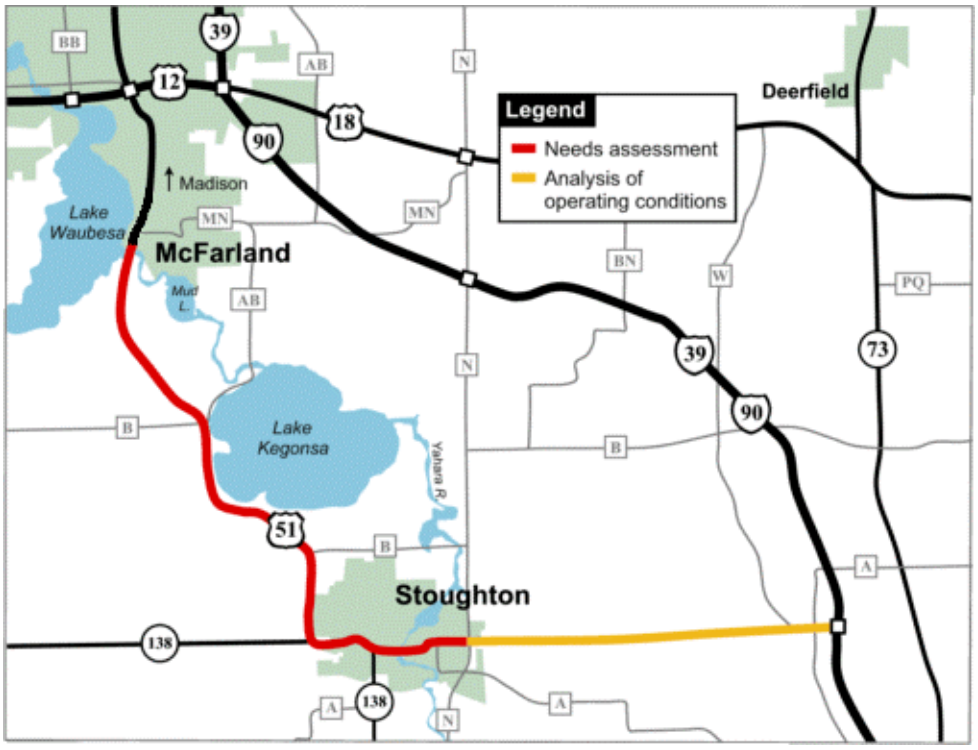

Figure ES-1 USH 51 Study Corridor

The goals of the USH 51 Needs Assessment are to:

- Inventory existing corridor facilities and environmental resources.
- Collect and analyze data on crash history, land use, and traffic volumes.
- Project future land use and traffic volumes.
- Identify and involve current and potential corridor users.
- Identify and involve affected communities.
- Identify and involve affected governments and agencies.
- Articulate existing and future corridor needs.

Because this study is strictly a needs assessment, it neither proposes nor evaluates possible corridor improvements. In the next phase of this study, WisDOT will examine alternatives for addressing the needs identified here.

STUDY PROCESS

The study began in February 2003 and concluded in February 2004. The study team collected a variety of data from multiple sources to assess the existing and future needs of USH 51. Public involvement played an important role in identifying existing corridor needs. Public involvement activities included:

- Technical Advisory Committee
- Policy Advisory Committee
- Project Web site
- Three newsletters
- One transportation needs survey
- Four focus groups
- Information booth at two community functions
- Three workshops
- Nine individual interviews
- One public information meeting

Traffic modeling was used to assess existing and future operations on USH 51. For modeling travel in the region, the study team used the Madison Area Metropolitan Planning Organization's (MPO) latest TRANPLAN traffic model of Dane County and refined it for use in analyzing the USH 51 study corridor. Future traffic volumes were generated based on multiple land use and population forecasts. TRANPLAN distributed the future traffic on the existing highway and street network. The study team used the traffic patterns generated by TRANPLAN to simulate existing and future operations at key locations using the Paramics computer program.

SUMMARY OF PUBLIC FEEDBACK

Public involvement activities were successful in identifying a wide range of concerns with the existing USH 51 corridor. The following comments were among the most common:

- The highway is very congested during the AM and PM peak hours.
- The intersections are unsafe, particularly CTH B West/CTH AB, Roby Road, and STH 138 West.
- Left turns on to and off of the highway are difficult and dangerous.
- Lane markings are unclear at the Exchange Street and CTH N intersections.
- Drivers on USH 51 are increasingly aggressive and impatient; more law enforcement is needed.
- Pedestrian and bicycle facilities are poor.

CORRIDOR DESCRIPTION

The topography of the study corridor is characteristic of the rolling morainal terrain found in the central portion of Dane County. The corridor lies in the Yahara River Valley and is adjacent to Lake Kegonsa, Lake Waubesa, and Lower Mud Lake. Farming and agricultural activities dominate land use in the towns of Albion, Dunkirk, Dunn, Pleasant Springs, and Rutland. In general, nonresidential uses and a full range of urban residential uses are focused in the village of McFarland and the city of Stoughton.

USH 51 travels 16.1 miles from Burma Road in McFarland to IH 39/90. The highway cross sections include two-lane, four-lane undivided, and four-lane divided stretches. Bicycle accommodations are limited within McFarland and Stoughton and nonexistent between the two municipalities. Pedestrian facilities in McFarland and Stoughton are not continuous.

Two population projection methodologies were carried out based on trends occurring in McFarland, Stoughton, and the surrounding Towns. The Technical Advisory Committee decided to use a methodology that looked at two growth rates for McFarland and Stoughton based on Census data from 1980 to 2000. Both methodologies assumed that the average number of housing starts occurring in the rural towns during this period would continue in future years.

Using one methodology, the average annual growth rate for the overall study area from 2000 to 2030 would be approximately 1.2 percent per year assuming the same number of people added to McFarland and Stoughton per year from 1980 to 2000 continued. (In Stoughton and McFarland, this translates into a 1.5 percent and a 1.6 percent growth rate, respectively.)

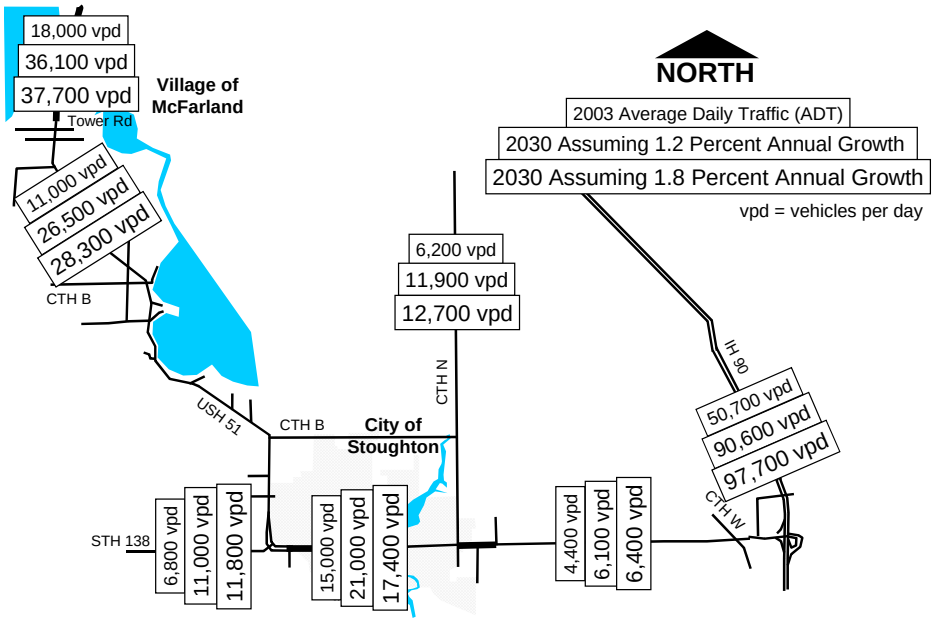

Figure ES-2 Existing and Future Traffic Volumes

The second methodology assumed the average annual growth rate that Stoughton and McFarland experienced between 1980 and 2000 continued through 2030, the average annual growth rate for the study area would be 1.8 percent. (In Stoughton and McFarland, this translates into a 2.5 percent and a 2.7 percent rate of growth, respectively.[1])

[1] Interestingly, this population projection is equivalent to the population expected in 2050 assuming a 1.2 percent average annual growth rate. See section 3.04 for more information on the projections.

The population projections were used to forecast future land use in each jurisdiction. The study team used the future land use scenarios to develop future traffic volumes and patterns which were then used to assess future traffic operations. Existing and future traffic volumes are shown in Figure ES-2.

The number of vehicles a roadway can carry is determined by the characteristics of that roadway, but the number of people transported is determined by both the roadway and the vehicles it carries. High occupancy vehicles use transportation facilities more efficiently. The following transit and rideshare services currently exist within the study corridor:

- State Vanpool
- Dane County Rideshare
- Taxicab
- Stoughton Shared Ride Taxicab
- Other Specialized Transportation

CORRIDOR NEEDS

The USH 51 Needs Assessment has raised a number of issues and concerns about the existing facility and its ability to safely accommodate vehicles, bicycles, and pedestrians both today and in the future. The needs have been divided into three categories; needs related specifically to the roadway, needs related to other modes of transportation, and needs related to ongoing land use planning efforts that affect the transportation system.

Identified roadway needs include:

- Increased law enforcement along the corridor.
- Improvements to lane markings and signage at some intersections (See figure ES-3).
- Safety improvements through Stoughton.
- Safety improvements at the CTH B West/CTH AB, CTH N, Page Street, and Tower Drive intersections.
- Maintaining suitable access to USH 51 within Stoughton, between Stoughton and McFarland, and within McFarland.

Figure ES-3 Exchange Street Intersection, Markings for the Northbound Right Turn Lane Need Improvement

- Maintaining suitable mobility and reducing congestion on the two-lane rural segment of USH 51 between Stoughton and McFarland.

Identified needs for other modes include:

- A pedestrian crossing of USH 51 between Babcock Park and its overflow parking lot in McFarland.
- Improvements to the discontinuous bicycle and pedestrian facilities in both Stoughton and McFarland.
- Improvements for pedestrian and bicycle access onto and across USH 51 on the west side of Stoughton.
- A suitable bicycle route between Stoughton and McFarland.
- Promotion of existing transit and transportation demand management programs serving the users of the study corridor.
- Planning for implementation of Transport 2020, a transit initiative under study for the Madison area that includes commuter rail and express bus service within Madison and to outlying communities.

Identified planning needs include:

- Continued coordination of land use changes with transportation system needs.
- Coordination with local utilities and the WSOR railroad as land use changes occur near the corridor.

SOCIOECONOMIC ISSUES AND IMPACTS

The needs identified in this report produce impacts on different elements of the community. The following paragraphs describe the impacts to travel, business and industry, neighborhoods, agriculture, and the natural environment.

Traffic modeling indicates that peak hour conditions on USH 51 in the future will deteriorate because of substantial

Figure ES-4 Screen Capture of Traffic Modeling Showing Queuing on CTH B East During the AM Peak Hour – 2030 Assuming 1.2 Percent Annual Growth

increases in total traffic volumes throughout the study corridor. This assumes that the majority of future travel continues current travel patterns, which are dominated by single occupancy vehicle trips. Vehicle queuing at many signalized intersections will have the potential to block adjacent intersections hindering efficient traffic operations and posing increasing safety risks. The average delay experienced by drivers wishing to enter USH 51 from a side road at an unsignalized intersection is expected to reach unacceptable levels at almost all locations between Stoughton and McFarland (see Figure ES-4) and at many locations within the two municipalities. In many locations, the typical driver has to wait more than three minutes before finding an adequate gap in traffic that will allow entrance to the highway. Passing slower moving vehicles between Stoughton and McFarland will become increasingly difficult and average travel speeds could drop as low as 35 mph.

The current lack of transit service and adequate bicycle and pedestrian facilities limits the ability of customers who do not drive to access some businesses in the corridor. The deficiencies identified by this study affect businesses and industries along the corridor. Future congestion and perceived or real dangers may keep potential customers away from businesses fronting the roadway.

USH 51 is considered McFarland and Stoughton's "Main Street." In some cases, the roadway separates neighborhoods from each other, not just physically but psychologically as well. It is moderately difficult for vehicles to cross the highway, but for children on bicycles or on foot, crossing the roadway poses even more serious challenges. This is especially true in McFarland where the highway separates the bulk of the community from the Lake Waubesa waterfront.

The existing highway poses challenges to farmers who depend on USH 51 to bring their goods to market and move machinery from one field to another. The shoulders are not paved or of sufficient width to accommodate a tractor, for instance, so part of the roadway must be used. This slows down vehicular traffic, which results in irritated drivers and stressful driving conditions for farmers.

The USH 51 study corridor travels 16.1 miles through a variety of sensitive natural and human environments. The Yahara River, Lake Waubesa, Lake Kegonsa, Mud Lake, Babcock County Park (see Figure ES-5), Viking County Park, and numerous other natural areas exist along the corridor. Motor vehicles impact local, regional, and global environments. With land use and population projections indicating that traffic volumes within the study corridor are likely to double by 2030, the negative impacts motor vehicles have on these environments will likely increase.

Figure ES-5 Babcock County Park on Lake Waubesa

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